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Attorney Docket No. UK999-027 #13

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): H. E. Butterworth et al.
Docket No.: UK999-027
Serial No.: 09/401,676
Filing Date: September 22, 1999
Group: 2131
Examiner: Christian A. La Forgia

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature:

Lisa L. Tulpie

Date: September 8, 2003

Title: Data Processing Systems and Method
for Processing work Items in Such Systems

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

Applicants (hereinafter referred to as "Appellants") hereby appeal the final rejection of claims 1-14 of the above referenced application.

REAL PARTY IN INTEREST

The present application is assigned to International Business Machines Corp., as evidenced by an assignment recorded September 22, 1999 in the U.S. Patent and Trademark Office at Reel 10279, Frame 0510. The assignee, International Business Machines Corp., is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals and interferences.

STATUS OF CLAIMS

Claims 1-14 are pending in the present application. Claims 1-3, 5-7, 10-12 and 14 stand rejected under 35 U.S.C. §102(e), and claims 4, 8, 9 and 13 stand rejected under 35 U.S.C. 103(a). Claims 1-14 are appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the rejection.

SUMMARY OF INVENTION

The present invention relates generally to processing of work items in data processing systems and more particularly to the scheduling of tasks to process such work items (Specification, page 1, lines 5-8).

By way of example, as recited in claim 1, a method for processing work items in a data processing system comprises the following steps. An interrupt is generated in response to receipt of a work item in the system. The generated interrupt is serviced to schedule a task for later processing of the work item, without reenabling the interrupt. The task is subsequently executed to process the work item. Finally, a further task is speculatively scheduled for processing of any work items that are subsequently received in the system.

As a further example, as recited in claim 2, a method for processing work items in a data processing system comprises the following steps. The speculatively scheduled task is executed to process any work items received by the system. On a determination that there are no work items to process, the interrupt is enabled. On a determination that there are work items to process, a further task is speculatively scheduled without re-enabling the interrupt.

In accordance with one embodiment of the invention, the method could include the step of continually scheduling speculative tasks (i.e. polling) for processing of work items that may subsequently be received in the system (Specification, page 4, lines 8-16). In a preferred method, when the speculatively scheduled task is executed to process any work items received by the system and it is determined that there are no work items, the interrupt is enabled. Thus, when the system is fully utilized, the interrupt mechanism is replaced with a polling mechanism involving a

continuous series of speculatively scheduled tasks. However, when the system or device utilization decreases (i.e., when there are no work items when the speculatively scheduled task is processed), then the system reverts to interrupts (Specification, page 4, lines 18-27).

Finally, as recited in claim 12, a method for processing work items in a data processing system, comprises the following steps. An interrupt-based mechanism is effectively provided for processing work items when system utilization is low with respect to work items. A polling-based mechanism is effectively provided for processing work items when system utilization is relatively high with respect to work items.

A flow diagram showing the steps involved in a method according to a preferred embodiment of the invention is shown in FIG. 2. Schematic representations of the state of the task and work item queues of the preferred embodiment of the invention at different states of the method of FIG.2 are shown in FIGS. 3A, 3B and 3C. The above-mentioned figures describe a process, operable on a storage controller, for processing work items from the host system in a manner that combines the best attributes of the polling and interrupt methods to service the host work items with low latency at low utilization and by polling for low overhead at high utilization (Specification, page 10, lines 2-8).

ISSUES PRESENTED FOR REVIEW

1. Whether claims 1-3, 5-7, 10 and 11 are properly rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,081,783 to Divine et al. (hereinafter "Divine").
2. Whether claims 4 and 8 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Divine in view of U.S. Patent No. 5,555,420 to Sarangdhar et al. (hereinafter "Sarangdhar").
3. Whether claim 9 is properly rejected under 35 U.S.C. §103(a) as being unpatentable over Divine in view of U.S. Patent No. 5,682,554 to Harrell (hereinafter "Harrell").
4. Whether claims 12 and 14 are properly rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,189,070 to See et al. (hereinafter "See").
5. Whether claim 13 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over See in view of U.S. Patent No. 5,590,288 to Castor et al. (hereinafter "Castor").

GROUPING OF CLAIMS

Claims 1-14 do not stand or fall together. More particularly, claims 1, 3-5 and 7-10 stand or fall together, claims 2, 6 and 11 stand or fall together, and claims 12-14 stand or fall together.

ARGUMENT

Appellants incorporate by reference herein the disclosure of all previous responses filed in the present application, namely, responses dated January 24, 2003 and July 3, 2003.

Issue 1

With regard to the issue of whether claims 1-3, 5-7, 10 and 11 are properly rejected under 35 U.S.C. 102(e) as being anticipated by Divine, the Office Action contends that Divine discloses all of the limitations recited in the subject claims. Appellants assert that such claims are patentable for at least the reasons that independent claims 1, 5 and 10, from which claims 2, 3, 6, 7 and 11 directly depend, are patentable.

The present invention, as recited in independent claim 1, recites a method of processing work items in a data processing system, comprising the steps of: (i) generating an interrupt in response to receipt of a work item in the system; (ii) servicing the generated interrupt to schedule a task for later processing the work item, without re-enabling the interrupt; (iii) subsequently executing the task to process the work item; and (iv) speculatively scheduling a further task for processing of any work items that are subsequently received in the system. Independent claims 5 and 10 recite other aspects of the invention comprising similar limitations.

The Office Action states that the interrupt controller, the instruction register, and the control register of Divine perform speculative scheduling operations, as discussed in column 12, lines 7 to 46. However, in this instance, Divine teaches operation speculation predicting jump, branch and load instructions. Claim 1 of the present invention recites a method in which after receiving an interrupt, disabling interrupts, and scheduling tasks for the work item of the original interrupt, a further task is speculatively scheduled for processing any work items subsequently received in the system. As defined by the specification, a task is speculative in nature when the processor is

anticipating that further work items will appear on the work item queue while tasks for an original interrupt are executed. Since interrupts are not enabled when the speculative task is scheduled, work items which are subsequently added to the work item queue do not generate work item interrupts, see, e.g., page 12, lines 11-18 of the specification. Therefore, when the speculative task reaches the head of the task queue, the processor may have work items in the work item queue to process. The method of speculatively scheduling tasks is defined in the specification of the present invention as "polling", see, e.g., page 4, lines 8-16 of the specification. Thus, an original interrupt may be followed thereafter by a polling method.

Divine discloses that when a jump-to-subroutine instruction is executed, the value in the pointed-to-program counter location is incremented, the stack pointer is incremented and the jump address is written to the new PC stack location. Further, the stack of Divine is defined as circular and having a set number of entries, in that overflow will overwrite data previously on the stack. Divine does not disclose a system that utilizes a polling method. Divine also does not disclose the interaction of a work item queue and a task queue while interrupts are disabled in the manner of the present invention. Finally, Divine does not disclose a method that adds a task speculative in nature that will reach the head of the task queue and check for work items to process, thus potentially beginning a polling process.

The Office Action also states that an interrupt controller taught by Divine disables the interrupt, column 16, lines 38 to 66, of Divine. This differs from the present invention in that Divine disables interrupts only in response to a specific type of instruction (a JMPS instruction), while claim 1 of the present invention recites the generation of an interrupt and the scheduling of tasks for processing the work item of the interrupt while keeping interrupts disabled in all cases.

Finally, the Advisory Action cites FIG. 53b, block 5308, of Divine to provide support for the anticipation of a task speculative in nature and the ability to begin a polling process. The Advisory Action states that Divine clearly teaches a speculative task that checks for future work items, or instruction prediction. However, step 5308 simply polls data to determine if it is ready to be sent. FIG. 53b does not illustrate a system in which a work item is scheduled for task execution, interrupts remain disabled, and a speculative task is scheduled for processing work items that were received by a system while interrupts were disabled.

Additionally, Appellants assert that dependent claim 2 of the present invention is patentable with respect to Divine. Claim 2 recites a method of processing work items in a data processing system, comprising: (i) executing the speculatively scheduled task to process any work items received by the system; (ii) on a determination that there are no work items to be processed, enabling the interrupt; and (iii) on a determination that there are work items to process, speculatively scheduling a further task, without re-enabling the interrupt. Dependent claims 6 and 11 recite other aspects of the invention comprising similar limitations.

Divine does not disclose the execution of a speculatively scheduled task. Additionally, Divine does not disclose that the execution of the speculatively scheduled task results in the processing of any work items received by the system. Further, Divine does not disclose that an interrupt is re-enabled if there are no work items to process, or that a further task is speculatively scheduled without re-enabling the interrupt, if there are work items to process. Claim 2 of the present invention recites the steps taken to determine whether an interrupt-based mechanism or a polling-based mechanism is to be utilized. The option of an interrupt-based mechanism or a polling-based mechanism is not presented in Divine. Additionally, the method of deciding which mechanism to use, through speculatively scheduling a task, is also not disclosed in Divine.

In addition, it is asserted that dependent claims 3 and 7 are patentable for at least the reasons stated above and also recite patentable subject matter in their own right.

Accordingly, Appellants assert that claims 1-3, 5-7, 10 and 11 are patentable over the cited reference and therefore allowable. Withdrawal of the rejections is respectfully requested.

Issue 2

With regard to the issue of whether claims 4 and 8 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Divine in view of Sarangdhar, the Office Action contends that Divine discloses all of the claim limitations recited in the subject claims except that the execution of the task comprises processing all the received work items, which is allegedly taught by Sarangdhar. Appellants respectfully assert that the combination of Divine and Sarangdhar fails to establish a prima facie case of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

As set forth therein, M.P.E.P. §2143 states that three requirements must be met to establish a prima facie case of obviousness. One requirement is that the cited combination must teach or suggest all the claim limitations. Since it is sufficient to show that a prima facie case of obviousness has not been established by showing that one of the requirements has not been met, Appellants respectfully believe that the cited combination of Divine and Sarangdhar fail to teach or suggest all the limitations of claims 4 and 8.

As described above Divine fails to disclose the elements of claims 1 and 5, on which claims 4 and 8, respectively, directly depend. Further, the Divine/Sarangdhar combination fails to disclose the elements of claims 4 and 8. While Sarangdhar discloses a multiprocessor programmable interrupt controller system, the Divine/Sarangdhar combination fails to disclose the processing of all work items received after a task is scheduled and prior to its execution.

Accordingly, Appellants assert that claims 4 and 8 are patentable over the cited combination and therefore allowable. Withdrawal of the rejections is respectfully requested.

Issue 3

With regard to the issue of whether claim 9 is properly rejected under 35 U.S.C. §103(a) as being unpatentable over Divine in view of Harrell, the Office Action contends that Divine discloses all of the claim limitations recited in the subject claims except the interrupt generating means and processing means being embodied in a data storage controller and the work items comprising data transfer requests from an attached host system, which is allegedly taught by Harrell. Appellants respectfully assert that the combination of Divine and Harrell fails to establish a prima facie case of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

As set forth therein, M.P.E.P. §2143 states that three requirements must be met to establish a prima facie case of obviousness. One requirement is that the cited combination must teach or suggest all the claim limitations. Since it is sufficient to show that a prima facie case of obviousness has not been established by showing that one of the requirements has not been met, Appellants respectfully believe that the cited combination of Divine and Harrell fail to teach or suggest all the limitations of claim 9.

As described above Divine fails to disclose the elements of claim 5, on which claim 9 directly depends. Further, the Divine/Harrell combination fails to disclose the elements of claim 9. Harrell discloses method for facilitating rapid data transfer between various processing systems, but the Divine/Harrell combination fails to disclose an interrupt generating means and a processing means embodied in a data storage controller. The Divine/Harrell combination also fails to disclose work items comprising data transfer requests from an attached host system.

Accordingly, Appellants assert that claim 9 is patentable over the cited combination and therefore allowable. Withdrawal of the rejections is respectfully requested.

Issue 4

With regard to the issue of whether claims 12 and 14 are properly rejected under 35 U.S.C. §102(e) as being anticipated by See, the Office Action contends that See discloses all of the claim limitations recited in the subject claims. Appellants assert that such claims are patentable for at least the reasons that independent claim 12, from which claim 14 directly depends, is patentable.

Claim 12 of the present invention recites a method of processing work items where an interrupt-based mechanism for processing work items is provided when system utilization is low with respect to work items. A polling-based mechanism for processing work items is provided when system utilization is relatively high with respect to work items.

See discloses a method for suspending operation to read code in a nonvolatile writeable semiconductor memory. More specifically, See discloses steps to determine the time remaining in which to complete operations before the next interrupt occurs. The system disables interrupts while completing operations and polling to determine if interrupts are pending. If an interrupt is pending and the operation has not completed, the operation is suspended and the interrupt is re-enabled. Thus, See seeks to optimize operation completion between interrupts without significantly altering the pattern of interrupts.

Independent claim 12 of the present invention differs from See in that it discloses the use of an interrupt based-mechanism and a polling-based mechanism. See discloses an interrupt based-mechanism, however, it fails to disclose a polling-based mechanism. While See discloses the "polling" of interrupts to determine if there are pending interrupts, this is not the polling-based

system described in the specification of the present application. The present invention defines "polling" as the continuous scheduling of speculative tasks for processing work items that may subsequently be received in the system (Specification, page 4, lines 9-11). If See finds an interrupt through its process, an interrupt-based mechanism, not a polling-based mechanism, is activated, by enabling the pending interrupt. Therefore, in See, the pattern of the interrupts is not altered. Further, See does not disclose mechanisms that are dependent on system utilization with respect to work items as recited in claim 12 of the present invention. Instead, See discloses an interrupt-based system that seeks to maximize the operation between scheduled interrupts.

Accordingly, Appellants assert that claims 12 and 14 are patentable over the cited reference and therefore allowable. Withdrawal of the rejections is respectfully requested.

Issue 5

With regard to the issue of whether claim 13 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over See in view of Castor, the Office Action contends that See discloses all of the claim limitations recited in the subject claims except work items received in accordance with at least one device driver associated with a host system, which is allegedly taught by Castor. Appellants respectfully assert that the combination of See and Castor fails to establish a prima facie case of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

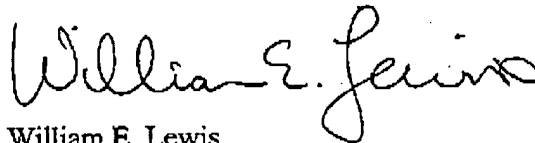
As set forth therein, M.P.E.P. §2143 states that three requirements must be met to establish a prima facie case of obviousness. One requirement is that the cited combination must teach or suggest all the claim limitations. Since it is sufficient to show that a prima facie case of obviousness has not been established by showing that one of the requirements has not been met, Appellants respectfully believe that the cited combination of See and Castor fail to teach or suggest all the limitations of claim 13.

As described above See fails to disclose the elements of claim 12. Further, the See/Castor combination fails to disclose the elements of claim 13. Castor discloses a distributed data processing system utilizing peripheral device polling, but the See/Castor combination fails to disclose a system where work items are received in accordance with at least one device driver associated with a host system.

Accordingly, Appellants assert that claim 12 is patentable over the cited combination and therefore allowable. Withdrawal of the rejections is respectfully requested.

For at least the reasons given above, Appellants respectfully request withdrawal of the §102(e) rejections of claims 1-3, 5-7, 10-12 and 14 and withdrawal of the §103(a) rejections of claims 4, 8, 9 and 13. Appellants believe that claims 1-3, 5-7, 10-12 and 14 are patentable over Divine and See, and claims 4, 8, 9 and 13 are patentable over the various combinations Divine, Sarangdhar, Harrell, See and Castor. As such, the application is asserted to be in condition for allowance, and favorable action is respectfully solicited.

Respectfully submitted,



Date: September 8, 2003

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APPENDIX

1. A method of processing work items in a data processing system comprising:
generating an interrupt in response to receipt of a work item in the system;
servicing the generated interrupt to schedule a task for later processing of the work item,
without re-enabling the interrupt;
subsequently executing the task to process the work item; and
speculatively scheduling a further task for processing of any work items that are subsequently
received in the system.

2. A method as claimed in claim 1 comprising the further steps of:
executing the speculatively scheduled task to process any work items received by the system;
on a determination that there are no work items to be processed, enabling the interrupt; and
on a determination that there are work items to process, speculatively scheduling a further
task, without re-enabling the interrupt.

3. A method as claimed in claim 1 wherein the work items are managed on a queue.

4. A method as claimed in claim 1 where in the event that further work items are received
after the task is scheduled and prior to execution of the task, the step of executing the task comprises
processing all the received work items.

5. A data processing system comprising:
processing means for executing tasks to process work items in the data processing system;
and interrupt generating means for generating an interrupt in response to receipt of a work item in
the system; wherein the processing means is operable to:
service the generated interrupt to schedule a task for later processing of the work item,
without re-enabling the interrupt;
subsequently execute the task to process the work item; and

speculatively schedule a further task for processing of any work items that are subsequently received in the system.

6. A data processing system as claimed in claim 5, the processing means being operable on a determination that there are work items to be processed to execute the speculatively scheduled task to process the work items and to schedule a further speculative task; and operable on a determination that there are no work items to be processed to enable the interrupt.

7. A data processing system as claimed in claim 5 further including memory for storing the received work items on a queue.

8. A data processing system as claimed in claim 5 where in the event that further work items are received after the task is scheduled and prior to execution of the task, the processing means is operable to execute the task to process all the work items.

9. A data processing system as claimed in claim 5 wherein the interrupt generating means and processing means are embodied in a data storage controller and the work items comprise data transfer requests from an attached host system.

10. A computer program product comprising a computer usable medium having computer readable program code means embodied in the medium for processing work items in a data processing system, the program code means comprising:

code means for causing the data processing system to service a generated work item interrupt to schedule a task for later processing of the work item, without re-enabling the interrupt;

code means for causing the data processing system to subsequently execute the task to process the work item; and

code means for causing the data processing system to speculatively schedule a further task for processing of any work items that are subsequently received in the system.

11. A computer program product as claimed in claim 10, the computer readable program code means further comprising:

code means for causing the data processing system to execute the speculatively scheduled task to process any work items; and

code means for causing the data processing system to enable the interrupt on a determination that there are no work items for processing.

12. A method of processing work items in a data processing system, comprising:

effectively providing an interrupt-based mechanism for processing work items, when system utilization is low with respect to work items; and

effectively providing a polling-based mechanism for processing work items, when system utilization is relatively high with respect to work items.

13. A method as claimed in claim 12 wherein work items are received in accordance with at least one device driver associated with a host system.


14. A method as claimed in claim 12 wherein the data processing system comprises a storage controller.

PTO/SB/31 (02-01)

Approved for use through 10/31/2002. OMB 0851-0031

U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES		Docket Number (Optional) UK999-027					
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" on <u>July 3, 2003</u> . Signature _____ Typed or printed name <u>Lisa L. Vulpis</u>		In re Application of <u>H.E. Butterworth et al.</u> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Application Number 09/401,676</td> <td style="padding: 2px;">Filed September 22, 1999</td> </tr> </table> For Data Processing Systems and Methods for Processing Work Items in Such Systems <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Group Art Unit 2155</td> <td style="padding: 2px;">Examiner Christian A. LaForgia</td> </tr> </table>		Application Number 09/401,676	Filed September 22, 1999	Group Art Unit 2155	Examiner Christian A. LaForgia
Application Number 09/401,676	Filed September 22, 1999						
Group Art Unit 2155	Examiner Christian A. LaForgia						
Applicant hereby appeals to the Board of Patent Appeals and Interferences from the last decision of the examiner.							
The fee for this Notice of Appeal is (37 CFR 1.17(b))		\$ 320.00					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: \$ _____.							
<input type="checkbox"/> A check in the amount of the fee is enclosed.							
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.							
<input type="checkbox"/> The Commissioner has already been authorized to charge fees in this application to a Deposit Account. I have enclosed a duplicate copy of this sheet.							
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. <u>50-0510</u> . I have enclosed a duplicate copy of this sheet.							
<input type="checkbox"/> A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.							
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.							
I am the							
<input type="checkbox"/> applicant/inventor.							
<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)							
<input type="checkbox"/> attorney or agent of record.							
<input checked="" type="checkbox"/> attorney or agent acting under 37 CFR 1.34(a). Registration number if acting under 37 CFR 1.34(a) <u>43,602</u>							
		 Signature					
		<u>Wayne L. Ellenbogen</u> Typed or printed name					
		<u>July 3, 2003</u> Date					
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.							
<input type="checkbox"/> Total of _____ forms are submitted.							

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Transmittal Letter - 1 page
Response to Final Office Action - 5 pages
Notice of Appeal - (Orig. & 1 copy)

July 3, 2003
UK999-027
Serial No. 09/401,676
1500-32



Receipt in the USPTO is hereby acknowledged of:

Transmittal of Appeal Brief - (Orig. & 1 copy)
Appeal Brief - (Orig. & 2 copies)
Copy of Notice of Appeal, filed on July 3, 2003,
with copy of stamped return postcard - 2 pages

September 8, 2003
UK999-027
Serial No. 09/401,676
1500-32



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DATE: November 14, 2003**FILE:** Attorney Docket No. UK999-027
Serial No. 09/401,676Facsimile Message From: **TERESA M. HAMLIN**

Please deliver the following pages to:

NAME: Examiner Christian A. La Forgia**OF:** U.S. Patent and Trademark Office**FAX NUMBER:** (703) 872-9306**NUMBER OF PAGES INCLUDING THIS COVER PAGE:** 18**COMMENTS/INSTRUCTIONS**

As per our discussion, attached are copies of the Transmittal of Appeal Brief and Appeal Brief with enclosures which were filed with the U.S. Patent and Trademark Office on September 8, 2003 for Application Serial No. 09/401,676. We also attach a copy of the return stamped postcard indicating receipt by the USPTO on September 10, 2003. Please let me know if you require any additional information. Thank you for your help.

If you do not receive all of the pages, please call us back as soon as possible at (516) 759-2722.

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Attorney Docket No. UK999-027

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): H. E. Butterworth et al.
Docket No.: UK999-027
Serial No.: 09/401,676
Filing Date: September 22, 1999
Group: 2131
Examiner: Christian A. La Forgia

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: Lisa L. VulpisDate: September 8, 2003

Title: Data Processing Systems and Method
for Processing work Items in Such Systems

TRANSMITTAL OF APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

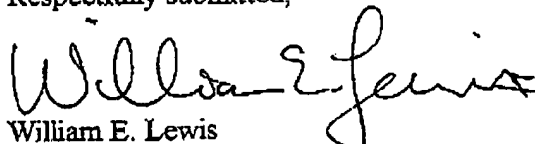
Sir:

Submitted herewith are the following documents relating to the above-identified patent application:

- (1) Appeal Brief in triplicate (original and two copies); and
- (2) Copy of Notice of Appeal, filed on July 3, 2003, with copy of stamped return postcard indicating receipt of Notice by PTO on July 7, 2003.

Please charge **International Business Machines Corporation Deposit Account No. 50-0510** the amount of \$320 to cover this submission under 37 CFR §1.17(c). In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Deposit Account No. 50-0510** as required to correct the error. A duplicate copy of this letter and two copies of the Appeal Brief are enclosed.

Respectfully submitted,



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Date: September 8, 2003